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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* JEFFREY S. MAILLOUX, KEVIN J. RYAN,  
TODD A. MERRITT, and BRETT L. WILLIAMS

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Appeal 2008-1916  
Application 08/984,563  
Technology Center 2100

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Decided:<sup>1</sup> March 3, 2009

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Before JAMES D. THOMAS, LANCE LEONARD BARRY, and  
HOWARD B. BLANKENSHIP, *Administrative Patent Judges*.

THOMAS, *Administrative Patent Judge*.

DECISION ON APPEAL

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<sup>1</sup> The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the decided date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

### STATEMENT OF THE CASE

This is an appeal under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 59 through 62, 68, and 69. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

#### *Invention*

The invention is directed to a dynamic random access memory (DRAM) which is switch-selectable between burst and pipelined modes. See Figures 9-12.

#### *Representative Claim*

59. A method of accessing a memory, comprising:
- receiving an external row address;
  - choosing whether the memory is in a burst mode of operation or in a pipeline mode of operation;
  - selecting a read operation or a write operation for the memory; and
  - executing a read or write operation in the chosen mode of operation.

#### *Prior Art and Examiner's Rejections*

The Examiner relies upon the following references as evidence of unpatentability:

Ogawa	5,293,347	Mar. 8, 1994
Manning	5,610,864	Mar. 11, 1997 (filed Feb. 10, 1995)
Roy	6,065,092	May 16, 2000 (effective filing date May 10, 1995)

All claims on appeal, claims 59 through 62, 68, and 69, stand rejected under 35 U.S.C. § 103(a). As evidence of obviousness, the Examiner relies upon Manning in view of Roy in a first stated rejection. In a second stated rejection, the Examiner relies upon Manning in view of Ogawa as to all these claims as well.

### *Claim Groupings*

The subject matter of independent claim 59, 68, and 69 is argued collectively and focuses upon the general feature recited in each of them of selecting between a burst mode and a pipelined mode of operation of a memory. No other arguments are presented as to any other feature of any of these independent claims, and no arguments are presented as to dependent claims 60 through 62.

### ISSUES

Have Appellants shown that the Examiner erred in finding that the combination of Manning and Roy and, separately, the combination of Manning and Ogawa, teaches the argued feature of selecting between a burst mode of operation and a pipelined mode of operation in a memory?

### *Related Appeals*

Three prior Decisions on Appeal are noted with respect to this appeal: Appeal No. 2004-0414, decided on October 28, 2004; Appeal No. 2004-1705, decided on February 25, 2005; and Appeal No. 2005-1725, decided on March 20, 2006. It is noted that the same Manning reference relied upon in

this present appeal was utilized in each of the prior appeals with respect to rejections under 35 U.S.C. § 102. In reversing the rejections of substantially all claims in these three prior appeals, the various panels of the Board generally found that the lack of details with respect to Manning's teachings, at column 5, lines 43 through 46, relating to pipeline architectures of prior art memories, led to the conclusion that this reference alone did not suggest the specific applicability of the burst mode teachings of operation in Manning to these pipelined architectures.

#### FINDINGS OF FACT

1. It is noted earlier with respect to the three prior decisions related to this appeal, the Examiner again relies upon the broad applicability of Manning's teachings to pipelined architectures in memories, at column 5, lines 42 through 50. Manning also teaches, at column 6, lines 14 through 36, the ability to switch between so-called burst EDO and standard EDO modes of operation of memory devices. Additionally, column 7, lines 28 through 54, teaches the applicability of Manning's invention such that "[a] more complex memory device may provide additional modes of operation such as switching between fast page mode, EDO page mode, static column mode and burst operation through the use of various combinations of /WE and /OE at /RAS falling time" as noted at column 7, lines 51 through 54.

2. Roy contains a significant discussion of prior art memories at columns 1 through 7. This discussion includes prior art pipelining techniques in memories. Of significance here is the discussion beginning at column 4, line 50 through the top of column 5, indicating that it was known in the art to enhance memory cycle times using pipelined architectures (as in

Manning) applied to Extended Data Out (EDO) DRAMs. It was also known in the art according to this corresponding discussion to use burst EDO techniques as well.

3. Pertinent to the discussion here as well are the showings in Figures 5 through 12. With respect to Roy's contribution in the art, at least the discussion in the latter portion of column 14 relates to high speed pipelined operations of memory devices. The Examiner makes a brief mention of the Figure 5 discussion at the bottom of column 21, lines 60 and 61, that many substantially different operating modes may be supported by the disclosed invention. Following up on this general teaching, the Examiner relies upon the discussion of Figure 5, at column 27 beginning with the topic heading "TRANSACTION TYPES AND PROTOCOL." The discussion here begins with indicating the Figure 5 embodiment and later Figures illustrate as well the ability of Roy's teachings to switch between clusters of memory devices and banks of them as well. Although the Examiner's specific reliance ends on line 46 of column 28, the brief discussion with respect to Figures 8 through 12, beginning at line 47, indicates that the various types of read and write transactions are illustrated to include various types of burst accesses, and various types of pipelined mode accesses, each of which appears to rely upon the various header formats illustrated in Figures 8 through 12. Therefore, Roy plainly teaches the selectability between burst and pipelined modes of operation in a memory device.

4. Columns 1 through 5 and Figures 11 through 19 of Ogawa relate to prior art pipelined processing structures and capabilities known in the memory device art. Ogawa's contributions in the art are directed to

Figures 1 through 9. In Figure 1, of particular importance here is the illustration of switches  $SW_1$ - $SW_3$  which in part permit Ogawa's invention to provide pipelined processing in a so-called page mode. As relied upon by the Examiner, the showings in Figures 7 and 8 respectively relate to pipelined processing in a normal reading mode of the memory device and pipelined processing in a normal write mode in a memory device according to Ogawa's contributions in the art.

5. Significantly, column 12, lines 5 through 10, of Ogawa teach "[a]lthough the present invention is employed in pipe line processing of a page mode for a dynamic type semiconductor memory device, the present invention is not limited to the page mode, and the concept of the present invention can be similarly applied to random read/write operation."

#### PRINCIPLES OF LAW

Section 103 forbids issuance of a patent when "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains."

*KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1734 (2007).

In *KSR*, the Supreme Court emphasized "the need for caution in granting a patent based on the combination of elements found in the prior art," and discussed circumstances in which a patent might be determined to be obvious. *Id.* at 1739 (citing *Graham v. John Deere Co.*, 383 U.S. 1, 12 (1966)). The Court reaffirmed principles based on its precedent that "[t]he combination of familiar elements according to known methods is likely to be

obvious when it does no more than yield predictable results.” *Id.* The operative question in this “functional approach” is thus “whether the improvement is more than the predictable use of prior art elements according to their established functions.” *Id.* at 1740.

The Federal Circuit recently recognized that “[a]n obviousness determination is not the result of a rigid formula disassociate from the consideration of the facts of a case. Indeed, the common sense of those skilled in the art demonstrated why some combinations would have been obvious where others would not.” *Leapfrog Enters, Inc. v. Fisher-Prince Inc.*, 485 F.3d 1157, 1161 (Fed. Cir. 2007) (citing *KSR*, 127 S. Ct. at 1739). The Federal Circuit relied in part on the fact that Leapfrog had presented no evidence that the inclusion of a reader in the combined device was “uniquely challenging or difficult for one of ordinary skill in the art” or “represented an unobvious step over the prior art.” *Id.* at 1162 (citing *KSR*, 127 S. Ct. at 1741).

## ANALYSIS

At the outset, we address two remarks of Appellants in the Reply Brief.

The first series of remarks relate to the discussions at page 4 of the Reply Brief which apparently are directed to the Examiner’s statements at page 5 of the Answer, where the Examiner generally asserts that one of ordinary skill in the art would have concluded that Manning alone teaches the claimed limitation of choosing or switching between a burst and pipelined mode of operation. As indicated with respect to our prior decisions noted earlier in this appeal, we do not accept or believe the artisan



would have viewed Manning in this manner when utilized alone in various rejections.

Taken alone, Appellants' second concern raised at page 6 of the Reply Brief appears to be directed to the Examiner's remarks in the paragraph bridging pages 5 and 6 of the Answer, relating to the Examiner's broad assertions that it was well known in the art that certain properties existed for memory devices with pipelined processing architectures. Although we have the same reservations as the Appellants' observations at page 6 of the Reply Brief, namely that no evidence is provided to substantiate or otherwise prove these assertions, the Examiner's positions would have been better stated if the Examiner indicated that the references to Roy and Ogawa as discussed by the Examiner in subsequent pages essentially taught the generalizations made in the paragraph bridging pages 5 and 6 of the Answer.

Notwithstanding these considerations, we affirm the Examiner's two separately stated rejections since the applied prior art does reasonably teach or suggest to the artisan, based upon the separate combinations of teachings of Manning and Roy and Manning and Ogawa, the general selectability between burst mode and pipelined modes of operations in memory devices. The Examiner's views of Roy/Ogawa "enhancing" Manning's teachings generally are found to be consistent with the above-noted case law and the guidance provided by the United States Supreme Court.

To the extent argued and to the extent recited in independent claims 59, 68, and 69 on appeal, the evidence provided by the Examiner from the applied prior art indicates that a person of ordinary skill in the art is familiar with elements known in the art leading to the obvious combination of them for predictable uses. Contrary to the positions stated at pages 11 and 13 of

the principal Brief and generally in the Reply Brief, there is no explicit requirement within 35 U.S.C. § 103 of any definable motivation to combine references. The standard, moreover, is not combinability of structural elements of references but combinability of the teachings of the respective references. The mere fact that any one reference does not teach the whole concept of switchability between burst and pipelined modes of operation does not amount to a rigorous teaching away or would otherwise teach to the artisan not to follow the given approach to the extent claimed or otherwise discourage it.

It appears to us that the evidence provided clearly would have indicated to the person of ordinary skill in the art the details of pipelined operations or modes of operation of memory devices as evidenced by Roy and Ogawa. Thus, the deficiencies we noted with respect to Manning alone in the three prior appeals noted earlier in this opinion are obviated. Plainly, from an artisan's perspective, the teachings and showings with respect to Roy's contribution to the art noted in Findings of Fact 2-3 obviously would have made up for the deficiencies noted with respect to Finding of Fact 1 of Manning. Indeed, the switchability aspect in Roy would have dovetailed nicely with the burst mode and regular mode teachings of Manning noted in Finding of Fact 2.

Correspondingly, the column 12 teaching in Ogawa noted in Finding of Fact 5 teaches or otherwise suggests the application of Ogawa's pipelined page mode of accessing a memory device (FF 4) to other pipelined modes of operation other than page modes, as well as to other modes of operation *per se*. These teachings also respectively dovetail, from an artisan's perspective, with the switchability of various modes of burst mode of operation and

standard mode of operation in Manning's memory device noted in Finding of Fact 1.

To the extent argued in the principal and Reply Brief that the combination of Manning and Roy and the separate combination of Manning and Ogawa do not teach all the claimed limitations, we strongly disagree. The extent of the arguments presented does not focus upon any feature of any independent claim 59, 68, and 69 other than a broad notion of the feature of switchability between a generalized burst mode of operation and a generalized pipelined mode of operation. To the extent argued at page 10 of the principal Brief as to Roy and at page 11 of the principal Brief as to Ogawa, the Examiner correctly notes, at the top of page 16 of the Answer in the responsive remarks portion of it, that the arguments recited there relate to features that are not recited in the rejected claims. In effect, Appellants argue their own disclosed invention in the Specification and inappropriately restate the rejections by implicitly importing disclosed limitations into the claims that are not recited therein. These arguments are unpersuasively repeated in the Reply Brief.

The alleged deficiencies of Roy and Ogawa with respect to Manning and the claimed invention are carried forward in the broad allegation of the lack of a reasonable expectation of success at page 13 of the principal Brief on Appeal. Section 103 does not require absolute predictability of success in combining teachings of respective references and the actual evidence provided by the applied prior art is consistent with the guidance provided by the U.S. Supreme Court noted earlier in this opinion.

### CONCLUSIONS OF LAW

Appellants have not shown that the Examiner erred in finding that the combination of Manning and Roy, and the separate combination of Manning and Ogawa, teaches or suggests to one of ordinary skill in the art switching between a burst mode of operation and a pipelined mode of operation in a memory device.

### DECISION

The Examiner's § 103 rejection of claims 59 through 62, 68, and 69 over Manning in view of Roy is affirmed. Likewise, the separate § 103 rejection of these claims over Manning in view of Ogawa is also affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

### AFFIRMED

mssc

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